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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,594	07/02/2003	Dennis J. O'Rear	005950-683	7248

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EXAMINER

PARSA, JAFAR F

ART UNIT PAPER NUMBER

1621

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/613,594	Applicant(s) O'REAR ET AL.	
	Examiner Jafar Parsa	Art Unit 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/2/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dai et al (USPN 6,160,026).

A method of controlling the temperature of an exothermic reaction, the method comprising:

a) contacting within a reactor a gaseous reactant with a catalyst to form reaction comprising:

a) contacting within a reactor a gaseous reactant with a catalyst to form reaction products, the reaction products existing in both a liquid and vapor phase;

b) removing at least a portion of the vapor phase reaction products from the reactor;

c) condensing at least a portion of the removed vapor phase reaction products at a location outside the reactor to form a volatilizable liquid; and

d) injecting at least a portion of the volatilizable liquid into the liquid phase reaction products contained within the reactor; wherein the volatilizable liquid comprises at least 10 percent by weight C11+ hydrocarbons.

Dai teaches a process for optimizing hydrocarbon synthesis by reacting hydrogen and carbon monoxide in the presence of a particulate solid catalyst in a slurry bed reactor. The Fischer-Tropsch reaction is an exothermic reaction. Therefore, the heat of the reaction needs to be controlled to minimize both the catalyst deactivation and the production of undesired hydrocarbons such as, methane. Dai teaches that gaseous and light naphtha are withdrawn from the top of the separation vessel and heavier hydrocarbons are cooled in a heat exchanger outside of the reactor, and a portion of the heavier hydrocarbon is recycled to the slurry reactor. The recycled liquids are preferably of a boiling point sufficiently higher than reaction temperature so as to not produce significant vapor phase (see col. 11, lines 35-62). The heavier portion of the hydrocarbons recycled in the Dai's process encompasses the hydrocarbon numbers recited in claims 1-12, which is recycled as a cooling medium.

The difference between Dai and the claimed invention is that the instant claims require recycling at least 10 percent of the heavier portion of the liquid hydrocarbon product. The Dai reference does not specify a percentage of the heavier hydrocarbons that is recycled to the slurry reactor. Dai simply teaches that a portion of the heavier hydrocarbons is recycled to the slurry reactor. However, the reference teaches that the

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purpose of the recycling the heavier portion of the hydrocarbons to the slurry reactor is to control the exothermic heat of the reaction by reducing the vapor pressure of the gaseous reactant. Therefore, one ordinary skill in the art would be motivated to recycle the proper amount of the heavier hydrocarbons to regulate the exothermic heat of the reaction.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jafar Parsa whose telephone number is (571)272-0643. The examiner can normally be reached on 8 a.m.-4:30 p.m. (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on (571)272-0646. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

J. PARSA
PRIMARY EXAMINER


Jafar Parsa
Primary Examiner
Art Unit 1621

3/2/04

JP